

# CULTURAL AWARENESS AND NEGOTIATION SKILLS TRAINING: EVALUATION OF A PROTOTYPE SEMI-IMMERSIVE SYSTEM

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## ABSTRACT

The effectiveness of BiLAT, a game-based prototype for training negotiation skills in an Iraqi cultural setting, was assessed. The prototype aims to train deliberate preparation behaviors, trust- and relationship-building strategies, and familiarity with relevant cultural expectations and norms. Training is supported by automated coaching (during simulated negotiation meetings) and interactive post-meeting recaps. Effectiveness was measured via scores on an independent situation judgment test, completed by Soldiers both before and after training. Each time administered, the test yields a single score indicating the degree to which an individual's answers concur with experts' answers. The scores of Soldiers without prior negotiation experience increased significantly from pre-training to post-training. The scores of Soldiers with prior negotiation experience failed to increase; however, their initial pre-training scores were already relatively high. The results suggest that a relatively short amount of training with BiLAT (less than three hours) was sufficient to increase the knowledge level of novice negotiators. It remains to be determined whether only novices can benefit from training with BiLAT, or whether more experienced Soldiers might also gain some benefit, with greater amounts of training. In general, Soldier response to the training experience was very positive, despite the fact that more than 50% of them said they played games rarely or never. These results are significant because they provide new evidence that game-based tools such as the BiLAT can in fact be used within certain conditions to effectively train Soldiers.

## 1. INTRODUCTION

Successful negotiation requires good preparation and adherence to a negotiation strategy (e.g., win-win). Strategy application requires real-time decision making

guided by information gained during preparation along with information revealed by a negotiating counterpart during the meeting (Fisher & Ury, 1991; Wunderle, 2007). Information provided by the counterpart can be explicit and clear or it may be subtle and difficult to decipher. A negotiator needs to interpret the counterpart's motivations and positions based not only on background research, but also on how the counterpart reacts during the meeting. That interpretation can be especially difficult if the negotiating partner is from a different culture with unfamiliar social norms and customs. U.S. Soldiers are increasingly being required to conduct formal meetings and negotiations with individuals in different cultural settings. As recent experiences in Iraq and Afghanistan have shown, success or failure in these types of engagements can have profound tactical and strategic consequences. Soldiers must be trained in these skills in order to function optimally in these new operational settings.

The US Army has recognized the need to provide additional training and to better prepare Soldiers for conducting bi-lateral engagements and negotiations. The Army has taken a number of steps to integrate this instruction during pre-deployment training. Limited pre-deployment training occurs at home station using live role players while "graduation exercises" in negotiation training are also provided at the Combat Training Centers (e.g., National Training Center (NTC) and Joint Readiness Training Center (JRTC)). Despite the efforts being taken to address this new training requirement, some experts argue that, "While this training is an important development, it is not sufficient." (Tressler, 2007) As a result, additional tools and methods are required to improve proficiency and to better prepare Soldiers for this type of activity in the future.

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U.S. Army Research, Development, and Engineering Command, Simulation and Training Technology Center; the U.S. Army Research Institute for the Behavioral and Social Sciences; and the U.S. Army Research Laboratory, Human Research and Engineering Directorate; has developed a game-based training environment, which allows Soldiers to develop the requisite skills for this new challenge. The system (Enhanced Learning Environments with Creative Technologies for Bi-Lateral Negotiation (BiLAT), provides trainees with an opportunity to develop the necessary skills by learning how to prepare for and conduct a series of bilateral negotiations with different simulated characters in order to achieve objectives related to support and stability operations.

The BiLAT prototype contains five scenarios, each situated in an Iraqi cultural context. The scenarios were built to support the accomplishment of specific learning objectives which were developed in conjunction with the U.S. Army Command and General Staff College, School for Command Preparation (SCP), located at Ft. Leavenworth, KS. The strategic objectives are to train deliberate preparation behaviors and trust- and relationship-building strategies, which enable a negotiator to be successful under difficult, operational settings. Another aim is to familiarize the trainee with how to employ knowledge of local social norms to make more effective judgments about appropriate actions within a cross-cultural negotiation. A more detailed discussion of the learning objectives and the way they were built into the prototype can be found in Kim, Hill, Durlach, Lane, Forbell, Core, Marsella, Pynadath, and Hart (submitted for publication).

The first version of the BiLAT was delivered to the SCP in October 2006 and was first used to train senior Army officers attending the Brigade and Battalion Commanders' Pre-Command Course in January 2007. A number of usability tests were conducted over the next several months with Soldiers of different ranks assigned to units at Ft. Leavenworth, KS; Ft. Drum, NY; Ft. Campbell, KY; and at Ft. Hood, TX. The research effort being reported upon here involved an experiment conducted December 11-12, 2007, with 31 Soldiers assigned to the US Army's 10<sup>th</sup> Mountain Division at Ft. Drum, NY.

According to Hays (2005), there is an increasing advocacy for the use of games for military instruction, despite the fact that their training effectiveness is poorly documented. Proponents of training games argue that younger Soldiers are part of the "digital" generation, and therefore, will respond well to the use of games in training. However, other important research has shown that the majority of Soldiers do not play video games on a frequent basis. The research also suggests that this fact may have an impact on training outcomes (Belanich,

Orvis, Moore, Horn, and Solberg, 2007). Perhaps too much attention has been given to the media rather than the message. The form of training (e.g., classroom vs. games) is likely not the major determinant of effectiveness. Rather, that is determined by the instructional design, adherence to known principles of learning, and the alignment with learning objectives.

The current trend for game-based training is at least partly motivated by the desire to expand the contexts in which training can occur (anytime-anywhere), although Hays (2005) suggests that games may be best used in a blended environment (i.e., as an adjunct to classroom instruction.) In any case, the purpose of this research effort was to assess whether the BiLAT prototype, a game-based training tool, actually met its objectives of training deliberate preparation behaviors, trust- and relationship-building strategies, and familiarity with relevant cultural expectations and norms.

## 2. OVERVIEW OF BiLAT

Figure 1 depicts a schematized version of the trainee's experience in BiLAT. The prototype contains five scenarios reflecting actual negotiation situations reported to have been given by Soldiers with combat experience during Operation Iraqi Freedom. In each scenario, the trainee first receives an overview briefing for the scenario and a goal(s) to accomplish in the training exercise (e.g., solve the problem - why are the Iraqi merchants not using the new town market). Achieving the goal(s) entails reaching specified agreements or obtaining additional key information from different virtual characters in the exercise (e.g., get police cooperation for security at the market).

The trainee begins each exercise by conducting research in preparation for the meeting engagement with the first virtual character in the scenario (e.g., the police chief). The principal phases for each meeting cycle are: preparation, meeting/negotiation, and after action review (AAR). The preparation phase includes a number of sub-tasks to include establishing meeting objectives, conducting research, requisitioning necessary materials, selecting and rehearsing with an interpreter, and finalizing the meeting plan.

Each BiLAT scenario has been designed so that a trainee will be required to meet with a minimum of three virtual characters in order to successfully accomplish all of the objectives for an exercise. In many cases, the trainee will have to meet with a virtual character on more than one occasion in order to continue with the scenario. Once the specific objectives for the meeting are accomplished, the trainee is rewarded and granted access to one or more additional characters in

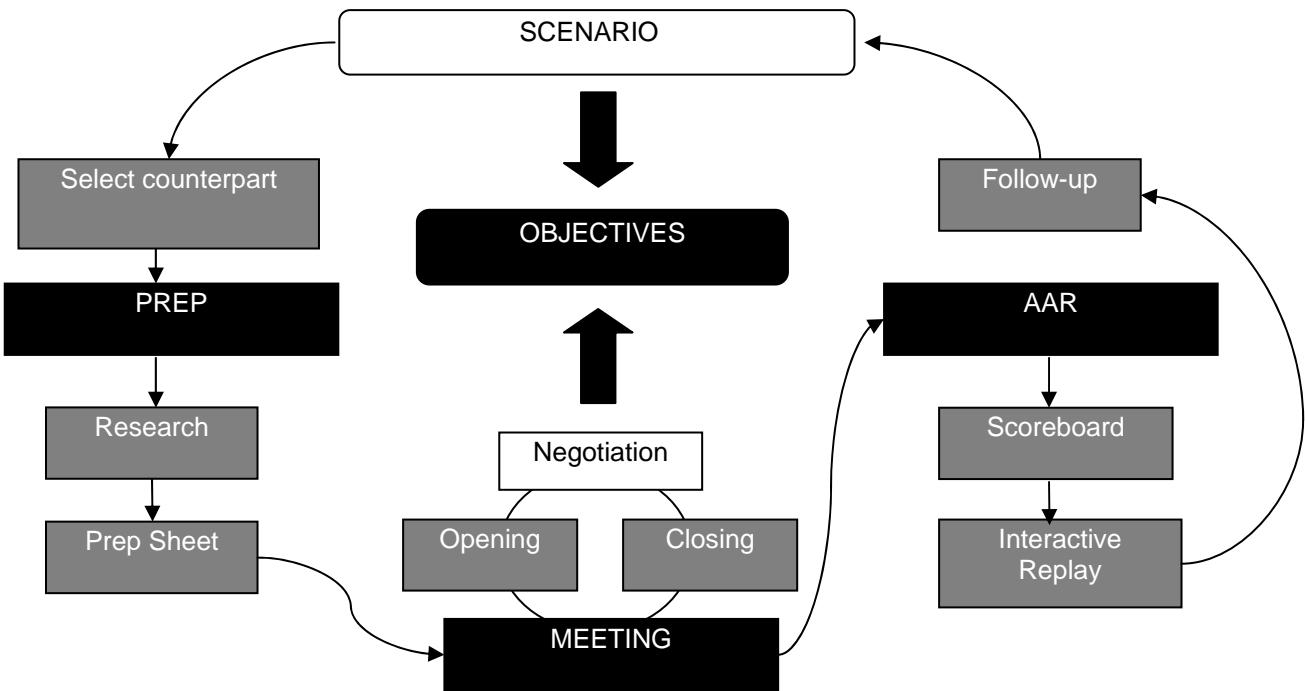


Fig 1. Organization of BiLAT Phases

order to continue the exercise. Each meeting engagement is approached in the same manner with the process (e.g., preparation, meeting/negotiation, AAR) repeating itself until all of the designated objectives for the scenario are satisfied.

During the preparation phase (Prep in Figure 1), the trainee is situated in a virtual command post where he conducts the required research and gathers information about the chosen meeting character by accessing a number of different resources. Examples include reviewing reports and simulating discussions with unit intelligence officers, civil affairs officers, media sources, as well as members of the local population. The trainee must analyze the raw “intel data” and decide how much of the information is important in preparation for the upcoming meeting.

The trainee then organizes the information by completing the “Prep-Sheet,” a tool which was developed previously by Subject Matter Experts for negotiation training at the JRTC at Ft. Polk, LA and adopted for use in this prototype. The Prep-Sheet is an effective tool for organizing research and planning one’s meeting strategy. The information accessed during the research process and added to the Prep-Sheet provides the basis for actions the trainee will be able to take during the subsequent meeting. For example, if the trainee accesses and records information that the police chief is a soccer fan, the trainee will be able to discuss soccer with the police chief if he chooses to do so during

the meeting. If he fails to uncover and record this information during his research, this option will not be available during the meeting.

Following completion of the Prep-Sheet, the trainee can simulate requisitioning items which might be of use during the meeting or negotiation session. He can select a virtual interpreter from a group of three which are provided for him in the game environment and he can simulate a rehearsal with the interpreter before beginning the meeting engagement. The trainee can access additional information relating to culture awareness and he can simulate a final preparation and review of his meeting plan with a “trusted virtual agent” (e.g., virtual battalion executive officer). Once the trainee feels the preparation phase is complete, he can elect to go on to the meeting phase of the exercise.

The meeting is situated in the “world” of the meeting counterpart (e.g., the police chief’s office). Figure 2 shows a screen shot from a BiLAT meeting engagement. Participants choose their actions from a list of options posted on the left side of the screen. Their choice is reiterated in white text in the dialog box on the right. The virtual character’s response can be heard orally and is written in yellow text in the dialog box on the right. The BiLAT uses advanced intelligent tutoring techniques to provide a coaching/tutoring capability during the meeting engagement. Suggestions from the coach appear as blue text in the dialog box on the right.



Fig 2. Screen shot from a BiLAT meeting

In order to interact with the simulated counterpart, the player chooses from a menu, with options sorted into one of four categories – “Say” (e.g., Greet in Arabic), “Ask” (e.g., Do you know why people are not using the market?), “Do” (e.g., remove sunglasses), and “Give” (e.g., offer first aid kits). Each successful meeting engagement consists of an opening phase, a negotiation phase, and a closing phase. Since each of these scenarios is set in an Iraqi context, it is important for the trainee to follow local Iraqi social customs throughout the meeting engagement (i.e., do not attempt to get down to business until sufficient social niceties have been exchanged and/or the counterpart brings up a topic related to the objective). If the proper steps are not followed, the virtual character will react negatively (e.g., exhibit frustration and eventually, anger). If the trainee persists in not following the appropriate cultural norms, the meeting partner may terminate the meeting.

At any point during the meeting, the trainee can ask the virtual character to negotiate. In turn the virtual character can agree or disagree, based in large part upon the degree of trust that has been established between the trainee and the character as well as the degree of conformance to social norms during the meeting.

In the negotiation phase, the trainee and virtual character make offers back and forth until an agreement is reached or until the trainee decides that no deal can be achieved during this session. The underlying negotiation principle used in the BiLAT is the “Win-Win” strategy (i.e., assumes that each negotiation partner has something to offer which will be of value to the other partner and an agreement can be reached where both partners benefit). Automated coaching is provided to the trainee in text messages throughout the negotiation phase. The models that control character responses and provide coaching are described in Kim, et al. (submitted for publication). Once the negotiation has concluded, the partners enter the closing phase of the meeting during which more interaction and social niceties are continued. Many times, success is rewarded during this part of a meeting engagement with the virtual character revealing

additional information that will be useful in subsequent meeting engagements.

The final phase of each BiLAT exercise is the After-Action-Review (AAR). The AAR begins with a summary assessment of how the player performed in the meeting followed by a presentation from an automated tutor which provides detailed feedback on the meeting engagement. The AAR includes a replay of the meeting in which the tutor reviews the meeting interactions and asks questions (answered from a menu) which are intended to promote reflection about ways the learner might improve performance in the future. Following the AAR, the exercise continues with another meeting with the same character or with research beginning in preparation for a meeting with a new character. The combination of the summary assessment and the detailed feedback from the automated tutor provides an effective assessment of the trainee’s performance and can be used by the trainee to improve performance during follow-on meeting engagements

### 3. THE TRAINING EVALUATION SITUATION JUDGMENT TEST

In order to evaluate the training effectiveness of BiLAT, we created an independent assessment of respondents’ ability to apply negotiation strategies and tactics, appropriate for an Iraqi cultural context. The assessment used a variation of a Situational Judgment Test (SJT). SJTs are often used for personnel selection and prediction of job performance (O’Connell, Hartman, McDaniel, Grubb, & Lawrence, 2007). SJT items typically begin with a brief scenario which is then followed by several statements representing potential interpretations, responses, or actions to the SJT scenario. A respondent must judge the appropriateness of the statements as related to the scenario. The statements do not necessarily have objective, correct or incorrect answers; rather responses indicate a pattern of judgment. To score the test, an individual’s pattern is compared to normative patterns collected from groups with known characteristics (e.g., experts vs. novices, or leaders vs. followers). The respondent’s “score” is determined by the degree to which their pattern conforms to the normative pattern from the “desirable group.”

The project partners collaborated to create more than 20 initial scenarios with associated statements in the first version of the SJT. This pool of scenarios was evaluated and whittled down to a smaller set in consultation with expert instructors. This reduced set was then given to four independent subject matter experts (SMEs), who judged the “goodness” of the statements associated with each scenario (i.e., provided their answers). A subset of these scenarios and statements were then selected,

choosing ones which maximized SME agreement and provided coverage for BiLAT's top-level learning objectives. The final SJT included nine scenarios with three or four evaluation statements per scenario. Pair wise agreement between the SMEs (as measured by correlation) on the final subset was .92 or better. An example of one of the SJT items is given in Table 1.

Table 1. Sample Item from Situation Judgment Test

|   |      |          |      |   |   |   |   |   |   |   |    |
|---|------|----------|------|---|---|---|---|---|---|---|----|
| MAJ O'Rourke is about to meet with a local Iraqi leader for the first time. The MAJ is concerned about the potential outcome of this meeting where he will try to find out information about a suspected insurgent group in the area. What should you tell him? |      |          |      |   |   |   |   |   |   |   |    |
| Not to worry because whatever happens stays between him and his negotiation partner. If something goes wrong, it's not a big deal.  | Poor | Moderate | Good |   |   |   |   |   |   |   |    |
|   | 0    | 1        | 2    | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| It will help if he has planned for the possible effects of both success and failure of the meeting on the area of operations.   | Poor | Moderate | Good |   |   |   |   |   |   |   |    |
|   | 0    | 1        | 2    | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| He should be ready to put pressure on the local Iraqi leader if he does not immediately provide the information needed.   | Poor | Moderate | Good |   |   |   |   |   |   |   |    |
|   | 0    | 1        | 2    | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

The procedure for arriving at a score for each individual involved first standardizing each individual's responses, then computing the correlation between the standardized scores and the average of the standardized SME scores. This produced one number, ranging between -1.0 and 1.0, for each participant. The number represents the extent to which a participant's answers agreed with those of the SMEs, with 1.0 representing perfect agreement and -1.0 representing perfect disagreement.

The SJT was administered twice to each participant for this evaluation: once prior to training with BiLAT and once immediately following the training with BiLAT. An increase in the SJT score from pre-to-post training would suggest that a participant's ability to apply negotiation strategies and tactics, appropriate for Iraqi culture, had benefited as a result of the training.

## 4. METHOD

### 4.1 Participants

Thirty-one Soldiers participated in the study. Of the 31, 15 were enlisted Soldiers (E4 – E7), and 16 were commissioned officers (O1 – O3). All but five of the 31

Soldiers had previously been deployed at least once; most of these had been to Afghanistan (20); relatively few had been to Iraq (six). When asked how often they played computer or video games, only eight participants (26%) reported playing a few times a week or more. Seventeen (55%) said they never or rarely played video games.

### 4.2 Equipment and Materials

Eight laptop computers were used for the training. Each of the laptops was loaded with the BiLAT (version 1.7) software. The study was conducted in a well-lit room with several tables and chairs. A single laptop was placed on each table. Soldiers were asked to complete questionnaires collecting basic background and demographic information as well as both a pre-study and post-study SJT.

### 4.3 Procedure

The experiment was conducted over a two-day period, December 11-12, 2007. Half of the Soldiers (15) participated in the experiment on the first day and the remaining Soldiers (16) participated in the experiment on the second day. The activities for each day were divided into three sessions -- a morning session and two afternoon sessions. Each Soldier participated in one morning session and just one of the afternoon sessions. The morning session lasted approximately 2.5 hours. Approximately one hour was devoted to preparation for the experiment and 1.5 hours were devoted to the initial BiLAT training exercise.

Some Soldiers arrived for the morning session with a completed demographics questionnaire and pre-test SJT which they had received from the Ft. Drum exercise coordinator prior to the study. Those who did not bring these documents to the training were asked to complete them both immediately upon arrival. Each Soldier was then assigned a login name, a partner, and a time to return for the afternoon session. Partners were allowed to work together during the morning session; but, were assigned different afternoon times.

The morning sessions began once the paperwork was completed. One member of the study control group provided an overview briefing to the participants which lasted about one hour. The briefing described the overall goals of the research project, identified the strategic learning objectives for the BiLAT, and provided a demonstration of the BiLAT itself. This "knobology" demonstration showed the Soldiers how to "play the BiLAT game." Since the group of test subjects included a high percentage of "non-gamers," the Soldiers were asked to initially work with a partner while using the first BiLAT "Market" scenario. The control team directed this

approach in order to help the “non-gamers” overcome any problems or resistance to using a game-based training tool and to remove this as an obstacle to the learning which we hoped would occur during the individual training sessions.

The study team circulated the room and answered questions providing help or advice where required. The overall goal of this practice session was to ensure that all Soldiers understood the mechanics of how to interact with the software. After this practice session, Soldiers completed a short questionnaire providing their initial reactions to the game. The Soldiers participated in a brief group discussion and the control team addressed any outstanding questions. Soldiers were released for lunch and were reminded about what time to return in the afternoon.

The afternoon sessions on each day were divided into two separate, two-hour training periods. Each Soldier participated in just one of the afternoon training periods. Upon arrival, each Soldier chose a computer and began to work individually on a new BiLAT scenario (Power Scenario). Initially, the study team provided help only if a Soldier had software trouble (e.g., software seemed to “lock-up”); however, after approximately 60 minutes, the team also found it necessary to provide substantive assistance to some Soldiers who asked for help.

The individual training sessions lasted approximately 90 minutes. At the end of the 90 minute period, the Soldiers were instructed to complete their current meeting if they were in the meeting or AAR phase of the exercise. They were instructed not to start a new meeting. If the trainees were in the research or preparation phase for another meeting engagement, they were simply asked to stop work. When all of the Soldiers were ready, each was asked to complete the post-training SJT and a usability questionnaire. Finally, each afternoon session concluded with the study team discussing the training exercise with the Soldiers. Their feedback was useful as we look forward to continuing development of the BiLAT prototype in the future.

Each of the two scenarios used (Market in the morning session and Power in the afternoon sessions) for the training had three potential meeting characters. The trainees were required to obtain certain objectives with one character before they could move on and meet with the next character. It is thought by those familiar with the BiLAT that the Market scenario is an easier exercise than the Power scenario; however, no formal assessment of scenario difficulty has been conducted.

## 5. RESULTS

### 5.1 Participant Background

Two of the participants said they were familiar with BiLAT, but had never used it. The rest said they had never heard of the BiLAT before preparation for the experiment. Median self-rated knowledge of Arab and Middle-Eastern cultures was 3, on a 1 to 7 scale, where 1 was labeled Minimal, 4 was labeled Competent, and 7 was labeled Expert. Only 8 participants rated themselves as Competent or better. There was a significant positive association between self-rating and the number of months spent in deployment (Spearman  $r = .43$ ). There was also a significant positive association between self-rating and prior negotiation experience (Spearman  $r = .54$ ), with 11 of the Soldiers stating they had prior negotiation experience. Ten of the Soldiers had some previous formal training in negotiation skills. When asked how often they played computer or video games, only eight participants reported playing a few times a week or more. Seventeen said they never or rarely played video games.

### 5. 2 Comparison of Pre-training and Post-training SJT responses

Pre-training SJT responses were significantly correlated with self-rated knowledge of Middle Eastern culture (Spearman  $r = .49$ ) and post-training SJT scores were significantly correlated with previous formal negotiation training (Spearman  $r = .39$ ). To take these influences into account, an analysis of covariance was used to assess the change between pre- and post-training SJT scores. SJT scores were treated as a repeated measure and were analyzed with two, two-level categorical factors (enlisted vs. officer and previous negotiation experience), and two covariates (level of previous formal training and self-rated cultural knowledge). However, neither of the covariates actually accounted for a significant amount of variance in the analysis of covariance. In general, SJT scores increased from pre-training to post-training. Mean pre-training SJT score was .62, whereas mean post-training SJT score was .76. The interpretation of this increase was complicated by two significant interactions. One was between time of testing (pre- vs. post) and enlisted vs. officer,  $F(1, 25) = 4.60, p < .05$ , and the other was between time of testing and previous bilateral negotiation experience,  $F(1, 25) = 5.51, p < .05$ . These data are illustrated in Figure 3.

As can be seen in Figure 3, the post-training SJT scores depicted were fairly equivalent and failed to differ significantly among one another. The interactions mentioned above were primarily due to differences in pre-training SJT scores. The pre-training scores were higher, on average, for officers as compared to enlisted

personnel (solid vs. open symbols). They were also higher, on average, for Soldiers who had prior bilateral negotiation experience in another culture (left panel). Considering only participants *without* prior negotiation experience (right panel), the increase in SJT scores from pre- to post-training was significant, regardless of officer or enlisted status,  $t(20) = 4.39, p < .01$ . For those *with* prior negotiation experience, there failed to be a statistically significant change.

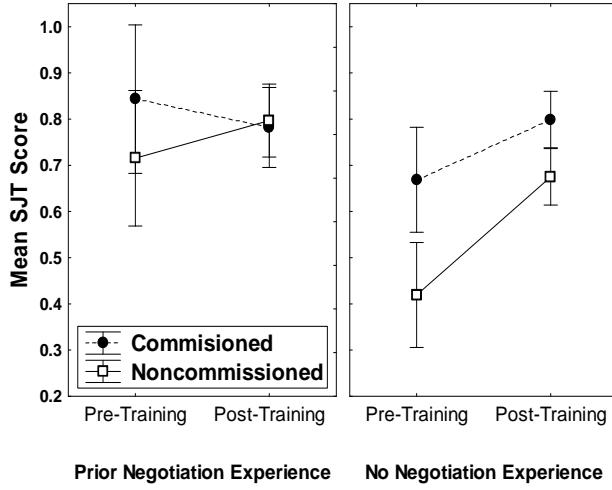


Fig 3. Mean pre- and post-training SJT scores, shown separately for officer and enlisted (solid vs. open symbols), and for Soldiers with vs. without prior negotiation experience (left vs. right panels). Bars denote 95% confidence intervals.

### 5.3 Performance during the Power Scenario and Soldier Feedback on BiLAT

A trainee had to meet and negotiate with three separate characters (Ali, Ismaa'el, and Hassan) in order to successfully complete the entire Power scenario. Players repeatedly met with Ali until they achieved the two required negotiation agreements. Once these objectives are achieved, access to the next character, Ismaa'el was granted, and so on. Fifteen of the 31 participants obtained the first two objectives with Ali; only one obtained the next pair of objectives with Ismaa'el. The median number of meetings completed was four (range: one to eight). On average, participants spent about 17.5 minutes on each meeting.

During each meeting the BiLAT system displays a trust meter which illustrates how well the virtual character trusts the player. Player mistakes tend to decrease the amount of trust exhibited by the virtual character, whereas culturally appropriate actions tend to increase trust. The trust meter scale ranges from a -5 to +15. The higher the value on the trust meter, the greater the level of trust between the trainee and the virtual

character. We analyzed the final trust score for each Soldier's first meeting with Ali (mean 10.3) against the trust score for their last meeting with Ali (mean 12.8). The increase from first to the last trust score was significant,  $F(1, 20) = 5.13, p < .05$ , suggesting Soldiers were becoming more adept at building trust over time. In addition, a person's best end-of-meeting trust score was significantly correlated with total number of objectives achieved (Spearman  $r = .49$ ). People with higher best trust scores obtained more of the objectives.

Post-training Soldier opinions of the BiLAT prototype and the training experience was generally positive. The median response to each of the six post-exercise questions about their training experience was 6. The scale for possible responses ranged from 1 (negative opinion) to 7 (positive opinion). The distribution of responses to the post-exercise questions is shown in Table 2.

Table 2. Responses to post-training questions (Scale 1-7)

| Alternatives 1 (most negative) to 7 (most positive)   | Number Choosing Alternatives |   |   |   |    |    |    |
|---|------------------------------|---|---|---|----|----|----|
|   | 1                            | 2 | 3 | 4 | 5  | 6  | 7  |
| Useful training or practice in bilateral negotiation  | 0                            | 0 | 0 | 2 | 4  | 27 | 5  |
| Useful training on key Iraqi cultural characteristics | 0                            | 0 | 1 | 4 | 4  | 16 | 6  |
| Ease of using software                                | 9                            | 1 | 1 | 6 | 6  | 7  | 10 |
| Ease of use to gather meeting preparation information | 0                            | 0 | 0 | 2 | 11 | 6  | 12 |
| Ease of use to conduct meeting phases                 | 0                            | 1 | 3 | 3 | 8  | 10 | 6  |
| Helpfulness of AAR                                    | 0                            | 2 | 0 | 8 | 5  | 6  | 10 |

## CONCLUSIONS

The present results are important because they provide new evidence that a game-based training tool such as BiLAT can be used effectively to train Soldiers. The results suggest that a relatively short amount of training with BiLAT (about three hours) was effective in increasing the knowledge level of novice negotiators, as measured by the SJT. The face validity of the SJT as a measure of relevant knowledge was bolstered by its ability to discriminate experienced vs. novice negotiators. That is, the finding that prior to training, SJT scores were significantly higher for experienced as compared to novice negotiators suggests that the SJT is measuring at least some aspects of negotiation skill.

It remains to be determined whether the training effectiveness of BiLAT is limited to novices only, or whether more experienced Soldiers might also gain some benefit. The exercise control team had access to each participant for only a single day. This limited the amount of time that Soldiers were available to interact with BiLAT. More interaction time may have resulted in a measurable benefit to experienced as well as novice Soldiers. It is also possible that more experienced Soldiers reaped a training benefit, but that the SJT was incapable of detecting it. We have not analyzed the psychometric properties of the SJT, and it is possible that it is not equally sensitive at different parts of its scale. It was also impossible to determine what impact if any the initial briefing given during the “knobology” instruction had on the test results.

Further research is required before a sound prescription on how to best implement training with BiLAT can be given. This study alone is insufficient to indicate the appropriate training audience or the appropriate training standard (e.g., training time or other performance criterion). Research suggests that tailoring the difficulty level of the scenarios to the initial skill level of the trainee would be an optimum approach (Bjork, 1994), though it would necessitate assessing that initial skill level.

Access to Soldiers for only one day also limited our ability to assess retention. As shown in several studies (Druckman, & Bjork, 1994), performance measures taken immediately after training do not necessarily coincide with those taken at a later time. Delayed measures indicate the persistence of acquired knowledge. Compared to immediate assessment, therefore, delayed assessment probably provides a better prediction regarding the transfer of training to real-life situations. Note that pre-training SJT measures correlated significantly with prior negotiation experience, but failed to correlate significantly with prior formal negotiation training. Yet, post-training SJT scores did show a significant positive association with prior formal training. A possible interpretation is that knowledge gained by prior formal negotiation training was cognitively inaccessible to Soldiers *before* BiLAT training; however, BiLAT training acted to rekindle this knowledge and make it accessible after training.

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